

## Claims

1. A system for processing the measuring signals from a sensor (12) comprising:
  - a first micro-controller (10), comprising an input for the sensor data, a first memory (18,19) and a first processor (16),
  - a second micro-controller (24) comprising a second memory (26,30) and a second processor (27);
  - a bus system (22) that connects the first micro-controller (10) with the second micro-controller (24),
  - wherein the first memory (18,19) stores data and instructions that are configured so as to be adapted to the sensor (12) and enable the conversion of the signals provided by the sensor (12) into data representing the variables to be measured, and
  - wherein the first processor (16) is connected such that it can execute the instructions stored in the first memory (18), and thereby convert in real-time the measuring signals of the sensor (12) into data that represent the measurable variable, and transfer these data by way of the bus system (22) to the second micro-controller (24), and
  - wherein the second memory (26, 30) stores sensor-independent data and instructions, which enable the processing of the data transferred by the bus system (22), representing the variable to be measured, and whereby the second processor (27) is connected so as to be able to execute the sensor-independent instructions in the second memory.
2. A system according to claim 1 wherein the sensor-independent instructions stored in the second memory (26) are configured so that the data processed by the second micro-controller (24) can be output.
3. System according to claim 2, which furthermore comprises an interface (28) by means of which the data processed can be output.
4. System according to claim 3, which furthermore comprises an output unit that is connected to the interface (28).

5. System according to claim 1, further comprising an analog-digital converter (14) connected between the sensor (12) and the first micro-controller (10).
6. System according to claim 1, wherein the second micro-controller (24) is furthermore connected to a timer unit by way of the bus system (22).
7. System according to claim 1, where both the first memory (18,19) and the second memory (26,30) each comprise a data memory (19;30) and a program memory (18;26).
8. System according to claim 1, wherein the first microcontroller (10) and the second micro-controller (24) are furthermore connected to transmission links (32), which control the access to the bus system (22).
9. System according to claim 1, wherein the sensor (12) consists of a resistor array serving to measure voltage and/or current parameters.
10. System according to claim 9, where the sensor is a flow meter to measure the consumption of gases or fluids.

11. An Electronic electricity consumption meter for processing the measuring signals from a sensor (12) comprising:

a first micro-controller (10), comprising an input for the sensor data, a first memory (18,19) and a first processor (16),

a second micro-controller (24) comprising a second memory (26,30) and a second processor (27);

a bus system (22) that connects the first micro-controller (10) with the second micro-controller (24),

wherein the first memory (18,19) stores data and instructions that are configured so as to be adapted to the sensor (12) and enable the conversion of the signals provided by the sensor (12) into data representing the variables to be measured, and

wherein the first processor (16) is connected such that it can execute the instructions stored in the first memory (18), and thereby convert in real-time the measuring signals of the sensor (12) into data that represent the measurable variable, and transfer these data by way of the bus system (22) to the second micro-controller (24), and

wherein the second memory (26, 30) stores sensor-independent data and instructions, which enable the processing of the data transferred by the bus system (22), representing the variable to be measured, and whereby the second processor (27) is connected so as to be able to execute the sensor-independent instructions in the second memory.

12. An Electronic electricity consumption meter according to claim 11, wherein the second memory (26,30) is configured so as to contain data and instructions that represent a current consumption tariff system, and where the further processing of the data representing the variable to be measured results in the computation of the electricity consumed.

13. An Electricity consumption meter according to claim 12, where the consumption tariffs are time-dependent and where the time information required for the computation of the electricity consumption costs are supplied by the timer.